

CLAIMS

WHAT IS CLAIMED IS:

1. A base station control equipment comprising:

channel controlling means for executing, in cooperation with a plurality N of radio
5 base stations, channel control of a call occurring in a mobile station located in any of wireless
zones individually formed by said radio base stations; and

speech path forming means for forming a speech path of a completed call inclusive
of a radio channel to be employed for said completed call under said channel control, and
wherein

10 said channel controlling means updates transmitting power of a radio channel
allotted anew to a radio base station among said plurality N of radio base stations, forming a
new visit-zone or a candidate for a new visit-zone of said radio base station, in which said
transmitting power is updated to a greater value in order of time sequence.

2. The base station control equipment according to claim 1,

15 wherein said channel controlling means independently obtains both or either of a
time point at which transmitting power of said radio channel allotted anew is to be updated
and/or an increment of transmitting power to be updated at the time point.

3. The base station control equipment according to claim 1,

wherein at the time of initiating transmission of said radio channel allotted anew,
20 said channel controlling means notifies the initiation to said mobile station through said radio
base station forming a former visit-zone of said mobile station and updates transmitting
power of said radio channel every time a response to said notice is received from said mobile
station through said radio base station forming a new visit-zone or a candidate for the new
visit-zone.

- 25 4. The base station control equipment according to claim 2,

wherein at the time of initiating transmission of said radio channel allotted anew, said channel controlling means notifies the initiation to said mobile station through said radio base station forming a former visit-zone of said mobile station and updates transmitting power of said radio channel every time a response to said notice is received from said mobile station through said radio base station forming a new visit-zone or a candidate for the new visit-zone.

5 5. The base station control equipment according to claim 1,

wherein at the time of initiating transmission of said radio channel allotted anew, said channel controlling means notifies the initiation to said mobile station through said radio base station forming a former visit-zone of said mobile station and updates transmitting power of said radio channel every time a response to said notice is received from said mobile station through said radio base station forming the former visit-zone.

10 6. The base station control equipment according to claim 2,

wherein at the time of initiating transmission of said radio channel allotted anew, said channel controlling means notifies the initiation to said mobile station through said radio base station forming a former visit-zone of said mobile station and updates transmitting power of said radio channel every time a response to said notice is received from said mobile station through said radio base station forming the former visit-zone.

15 7. The base station control equipment according to claim 1,

wherein said channel controlling means sets transmitting power of said radio channel allotted anew to a value equal to or greater than a product of a ratio of a level of a reception wave reaching a radio base station forming a former visit-zone from said mobile station, to a level of a reception wave reaching in parallel to said radio base station forming a new visit-zone from said mobile station, and transmitting power at which said radio base station forming said former visit-zone executes transmission to said radio channel allotted to

said mobile station.

8. The base station control equipment according to claim 7,

wherein said channel controlling means is notified of said transmitting power at which said radio base station forming said former visit-zone executes transmission to said radio channel allotted to said mobile station, and employs said transmitting power for setting transmitting power of said radio channel allotted anew.

9. The base station control equipment according to claim 1,

wherein said channel controlling means:

is given a prescribed level at which a reception wave reaches said mobile station in order to have said mobile station determine said new visit-zone;

is notified of a level of said reception wave through a radio base station forming a new visit-zone among said plurality N of radio base stations; and

sets transmitting power of said radio channel to a value equal to or greater than a product of:

a ratio of said prescribed level to a level of said reception wave; and

transmitting power at which said radio base station forming said new visit-zone executes transmission to said radio channel allotted anew.

10. The base station control equipment according to claim 1, further comprising speed monitoring means for monitoring a transmission rate at which transmission information to said mobile station is radio-transmitted, and wherein

said channel controlling means sets transmitting power of said radio channel allotted anew to a value proportional to said transmission rate monitored by said speed monitoring means.

11. The base station control equipment according to claim 1, further comprising speed monitoring means for obtaining a transmission rate which is given by a radio base station

forming a former visit-zone among said plurality N of radio base stations, said transmission rate being the rate at which the radio base station is to radio-transmit transmission information to said mobile station, and wherein

said channel controlling means sets transmitting power of said radio channel allotted
5 anew to a value proportional to said transmission rate.

12. The base station control equipment according to claim 1, further comprising speed monitoring means for obtaining a transmission rate which is given from a mobile station through a radio base station, among said plurality N of radio base stations and forming said former visit-zone, said transmission rate being the rate at which the radio base station is to
10 radio-transmit transmission information to the mobile station, and wherein

said channel controlling means sets transmitting power of said radio channel allotted anew to a value proportional to said transmission rate obtained by said speed monitoring means.

13. A radio base station control equipment comprising:
15 channel allotting means for forming a new visit-zone of a mobile station and allotting a downstream communication channel, that is to be formed between the mobile station and a radio base station, to the radio base station which executes transmitting power control of a downstream speech signal to be transmitted to the mobile station according to a signal received from the mobile station; and

20 channel controlling means for gradually updating transmitting power of said downstream communication channel to be transmitted by said radio base station from an initial value to a greater value.

14. The radio base station equipment comprising:
wireless interfacing means for forming a wireless zone in an area where a mobile
25 station can visit and for matching said wireless zone with transmission information to be

transmitted/received by said mobile station; and

channel controlling means for executing channel control relating to said wireless zone under the initiative of and in cooperation with a base station controller, and wherein

said channel controlling means updates transmitting power of a radio channel
5 allotted anew to said mobile station to a greater value in order of time sequence, in a hand-off process, when a wireless zone formed by a local station corresponds to a new visit-zone of a completed call occurring in said mobile station or a candidate for the new visit-zone.

15. The radio base station equipment according to claim 14,

wherein said channel controlling means independently obtains both or either of a
10 time point at which transmitting power of said radio channel allotted anew is to be updated and/or an increment of transmitting power to be updated at the time point.

16. The radio base station equipment according to claim 14,

wherein at the time of initiating transmission of said radio channel allotted anew,
said channel controlling means notifies the initiation to said mobile station and updates
15 transmitting power of said radio channel every time a response to said notice is received from said mobile station.

17. The radio base station equipment according to claim 15,

wherein at the time of initiating transmission of said radio channel allotted anew, said channel
controlling means notifies the initiation to said mobile station and updates transmitting
20 power of said radio channel every time a response to said notice is received from said mobile station.

18. The radio base station equipment comprising:

wireless interfacing means for forming a wireless zone wherein a mobile station can
be located, and matching said wireless zone with transmission information to be transmitted
25 /received by said mobile station; and

channel controlling means for executing channel control relating to said wireless zone under the initiative of and in cooperation with a base station controller, and wherein

said channel controlling means notifies transmitting power of individual radio channels where transmission is executed in a wireless zone formed by a local station through

5 said wireless interfacing means, to said base station controller on the basis of procedures of said channel control.

19. The radio base station equipment comprising:

wireless interfacing means for forming a wireless zone wherein a mobile station can be located, and matching said wireless zone with transmission information to be transmitted

10 /received by said mobile station; and

channel controlling means for executing channel control relating to said wireless zone formed by said wireless interfacing means under the initiative of and in cooperation with a base station controller, and wherein

said channel controlling means notifies a level of a reception wave notified from said
15 mobile station through said wireless interfacing means and reaching said mobile station through a radio channel not transmitted by a local station, to said base station controller.

20. The radio base station equipment comprising:

wireless interfacing means for forming a wireless zone wherein a mobile station can be located, and matching said wireless zone with transmission information to be transmitted/

20 received by said mobile station; and

channel controlling means for executing channel control relating to said wireless zone formed by said wireless interfacing means under the initiative of and in cooperation with a base station controller, and wherein

said channel controlling means notifies a transmission rate of transmission
25 information that is to be transmitted to said mobile station through said wireless interfacing

means and to be received by said mobile station.

21. The radio base station equipment comprising:

wireless interfacing means for forming a wireless zone wherein a mobile station can be located, and matching said wireless zone with transmission information to be transmitted
5 received by said mobile station; and

channel controlling means for executing channel control relating to said wireless zone formed by said wireless interfacing means under the initiative of and in cooperation with a base station controller, and wherein

said channel controlling means notifies a transmission rate of transmission
10 information notified through and transmitted by said wireless interfacing means and to be received by said mobile station, to said base station controller.

22. A radio base station comprising:

transmitting power controlling means for executing transmitting power control of a downstream speech signal to be transmitted to a mobile station in response to a signal
15 received from the mobile station; and

channel controlling means for gradually updating transmitting power of a communication channel allotted to said mobile station in hand-off process from an initial value to a greater value until transmitting power control based on the signal received from said mobile station is executed.

20 23. The radio base station according to claim 22,

wherein said channel controlling means terminates updating of said transmitting power either at a time point after a predetermined period from the initiation of transmission of said communication channel or at a time point at which transmitting power of said communication channel reaches a predetermined value, before the initiation of said
25 transmitting power control according to said signal received from said mobile station.

24. A radio terminal equipment comprising:

wireless interfacing means for forming a radio transmission channel to any of a plurality of radio base stations individually forming wireless zones and transmitting /receiving transmission information through the radio communication channel; and

channel controlling means for cooperating with said radio base stations through said wireless interfacing means and said radio transmission channel and executing channel control of a call occurring in a local station, and wherein

said channel controlling means monitors transmission quality of a downlink in a new visit-zone during a period where a completed call occurring in a local station continues to exist and transmits a response to said radio base station forming the new visit-zone among said plurality of radio base stations through said wireless interfacing means when said transmission quality is below a predetermined threshold value.

25. The radio terminal equipment comprising:

wireless interfacing means for forming a radio transmission channel to any of a plurality of radio base stations individually forming wireless zones and transmitting /receiving transmission information through the radio communication channel; and

channel controlling means for cooperating with said radio base stations through said wireless interfacing means and said radio transmission channel and executing channel control of a call occurring in a local station, and wherein

said channel controlling means monitors transmission quality of a downlink in a new visit-zone during a period where a completed call occurring in a local station continues to exist and transmits a response to a radio base station forming a former visit-zone among said plurality of radio base stations through said wireless interfacing means when said transmission quality is below a predetermined threshold value.

26. The radio terminal equipment comprising:

wireless interfacing means for forming a radio transmission channel to any of a plurality of radio base stations individually forming wireless zones and transmitting /receiving transmission information through the radio communication channel; and

channel controlling means for cooperating with said radio base stations through said wireless interfacing means and said radio transmission channel and executing channel control of a call occurring in a local station, and wherein

said channel controlling means monitors transmission quality of a downlink in a new visit-zone during a period where a completed call occurring in a local station continues to exist and notifies the transmission quality to a radio base station forming a former visit-zone among said plurality of radio base stations.

27. The radio terminal equipment comprising:

wireless interfacing means for forming a radio transmission channel to any of a plurality of radio base stations individually forming wireless zones and transmitting /receiving transmission information through the radio communication channel; and

channel controlling means for cooperating with said radio base stations through said wireless interfacing means and said radio transmission channel and executing channel control of a call occurring in a local station, and wherein

said channel controlling means obtains a transmission rate of transmission information to be received through a downlink in a wireless zone wherein the local station is located, when a completed call occurs in the local station or while the completed call continues to exist, and notifies the transmission rate to said radio base station forming said wireless zone.

28. A mobile communication system comprising:

first and second radio base stations;

radio base station control equipment for setting communication channels of said

first and said second radio base stations; and

channel controlling means for gradually updating transmitting power of a downstream communication channel of a mobile station that is to be set to said second radio base station, said transmitting power updated from an initial value to a greater value during a hand-off process where said mobile station communicates with said first radio base station or said second radio base station until transmitting power control is executed in accordance with a signal received from the mobile station.

29. The mobile communication system comprising:

a second radio base station for executing transmitting power control of a downstream speech signal to be transmitted to a mobile station in accordance with a signal received from said mobile station in communication with a first radio base station;

radio base station control equipment for executing channel control of said first and said second radio base stations;

notifying means for notifying start of transmission of a downstream communication information to said mobile station through said first radio base station when said second radio base station is selected as a radio base station forming a new visit-zone of said mobile station and the transmission of the downstream communication information starts;

receiving means for receiving a response transmitted from said mobile station in response to said notice; and

channel controlling means for judging whether or not to increase transmitting power of said downstream communication information according to said response received by said receiving means and updating said transmitting power to a high value within a predetermined level when the judgment result is true.

30. The mobile communication system comprising:

A mobile station;

radio base stations for executing transmitting power control of a downstream communication information to be transmitted to said mobile station in accordance with a signal received from said mobile station and receiving a state notice representing the state of a signal received by a local station, and a periphery base station from said mobile station; and

5 channel controlling means for:

obtaining a difference of propagation loss between a signal received by a radio base station forming a former visit-zone and a signal received by a radio base station forming a new visit-zone according to said state notice at the time of hand-off;

10 setting an initial value of transmitting power of a downstream communication information to be transmitted by said radio base station forming said new visit-zone according to said difference and a value of transmitting power of said downstream communication information transmitted by said radio base station forming said former visit-zone; and

gradually updating said transmitting power to a greater value.

15 31. The mobile communication system comprising:

a mobile station;

20 radio base stations for executing transmitting power control of a downstream communication information to be transmitted to said mobile station in accordance with a signal received from said mobile station and receiving a state notice representing the state of a signal received by a local station, and a periphery base station from said mobile station; and channel controlling means for obtaining a propagation loss of a transmission channel between said mobile station and a radio base station forming a new visit-zone according to said state notice at the time of hand-off and setting an initial value of transmitting power at which said radio base station executes transmission to said mobile station with taking said propagation loss into account.

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